RESEARCH QUESTIONS & HYPOTHESES
Body of Knowledge, Precedent

Theory

Individual

Problem Statement

Collective

Research Questions

Hypothesis

Point of View

What?
How?

Why?

Test - must confirm or discredit

Relationship of Variables

Guidelines
QUESTIONS & HYPOTHESES

SIGNPOSTS TO CARRY RESEARCHER & READER THROUGH A PLAN OF STUDY

1st PURPOSE STATEMENT – Establishes central direction for study

2nd QUESTIONS OR HYPOTHESES – Narrows the focus
HYPOTHESIS

RESEARCH QUESTIONS

focus - which road is next

GRAND CANYON

construct efficient route before traveling

LEVEL OF EFFORT

HYPOTHESIS

NYC
DEVELOPING QUESTIONS & HYPOTHESES

QUESTIONS AND HYPOTHESES

- SHAPE THE PURPOSE OF THE STUDY
- DEFINE RELATIONSHIPS OF IDEAS & DATA
- FOCUS THE SCOPE OF INVESTIGATION
RESEARCH QUESTIONS

• INTERROGATIVE STATEMENTS OR QUESTIONS THAT THE INVESTIGATOR SEEKS TO ANSWER

• WORKING GUIDELINES AS OPPOSED TO TRUTHS TO BE PROVEN

• OFTEN NEED REFORMULATION AS RESEARCH EVOLVES AND CHANGES
RESEARCH QUESTIONS

• WHAT AND HOW QUESTIONS-TEND TO BE MORE QUALITATIVE

• WHY QUESTIONS-TEND TO BE MORE QUANTITATIVE (suggest cause and effect)
RESEARCH QUESTIONS

CENTRAL QUESTIONS 1-2

- STUDY IN ITS MOST GENERAL FORM
- WHAT IS BROADEST QUESTION THAT CAN BE ASKED

ASSOCIATED SUB-QUESTIONS 5-7 (no more than 12)

- NARROWS FOCUS OF CENTRAL QUESTION STILL OPEN - DOORS NOT CLOSED
RESEARCH QUESTIONS RELATED TO QUALITATIVE STRATEGIES

“YOU WILL HAVE DIFFERENT TYPES OF QUESTIONS RELATED TO EACH STRATEGY”

- GROUNDED – discover
- ETHNOGRAPHY – seek to understand
- CASE STUDY – explore a process
- PHENOMENOLOGY – describe the experience
- NARRATIVE RESEARCH – report stories

(Creswell 107)
RESEARCH QUESTIONS RELATED TO QUANTITATIVE STUDIES

USE VERBS LIKE:

DETERMINE CAUSE
INFLUENCE IMPACT
RELATE AFFECT

SUGGEST RELATIONSHIP
**RESEARCH QUESTION EXAMPLES**

How do women in a psychology doctoral program describe their decision to return to school?  
(Creswell)

Does critical thinking ability relate to student achievement?  
(Creswell)

What perspective do medical students adopt to make sense of their experience in medical school?  
(Locke)

What level of moisture affects the growth of cactus?
HYPOTHESES

• “...RETAINS CHARACTER OF A GUESS UNTIL FACTS ARE FOUND TO CONFIRM OR DISCREDIT IT.” (Mauch)

• WHAT RESEARCHER IS EXPECTING TO FIND

• “CREATES A BRIDGE BETWEEN THE THEORETICAL CONSIDERATIONS THAT UNDERLIE A QUESTION AND THE ENSUING RESEARCH PROCESS DESIGNED TO PRODUCE THE ANSWER.” (Locke)

• INDICATES QUESTION IN TESTABLE FORM

• PREDICTS NATURE OF THE ANSWER
HYPOTHESES

- EXERTS DIRECT INFLUENCE ON EACH SUBSEQUENT STEP OF STUDY – FROM DESIGN TO PREPARATION OF FINAL REPORT
- STATES DIRECTION STUDY WILL TAKE
- EMPLOYS STATISTICAL PROCEDURES
- DRAWS INFERENCES
- REQUIRES EMPIRICAL SUPPORT
TYPES OF HYPOTHESES

NULL – Predicts NO relationship or NO differences

ALTERNATIVE (SOMETIMES CALLED RESEARCH)

- DIRECTIONAL – Expected prediction, differences ARE specified
- NON-DIRECTIONAL – Expected prediction, but exact form of differences NOT specified
CREATING HYPOTHESES (Balian 1994)

1. MUST REFLECT WHAT THE RESEARCH QUESTIONS IN ESSENCE ARE ALL ABOUT.

2. MUST BE WRITTEN CLEARLY, WITHOUT AMBIGUITY. ENSURE THAT ONE HYPOTHESIS IS ONLY ONE HYPOTHESIS AND NOT A COMPOUND THOUGHT.

3. A NULL HYPOTHESIS MUST BE TESTABLE BY STATISTICAL MEANS. IF STATISTICAL TESTING IS NOT POSSIBLE – “HYPOTHESIS” IS ACTUALLY A “RESEARCH QUESTION”.

4. IT IS BEST IF A STATISTICAL TEST ASSESSES ONLY ONE NULL HYPOTHESIS AT A TIME.
Section of south facing windows with the standard heights and the required inclination  

(Baker & Taleb 55)
ALTERNATIVE DIRECTIONAL

“The cooling cost of buildings in the summer season may be reduced by structural changes and/or repositioning of windows so that window panes are inclined to the inside, and the direction in which windows face is shifted at predetermined angles”
HYPOTHESES EXAMPLES

ALTERNATIVE NON-DIRECTIONAL

The cooling cost of buildings in the summer season may differ with structural changes and/or repositioning of windows so that window panes are inclined to the inside, and the direction in which windows face is shifted at predetermined angles.
The cooling cost of buildings in the summer season will show no appreciable difference with structural changes and/or repositioning of windows so that window panes are inclined to the inside, and the direction in which windows face is shifted at predetermined angles
RELATION OF RESEARCH QUESTIONS & HYPOTHESES (Groat 256)

PROBLEM STATEMENT

“Students observed that the space was seldom used as a lounge.”

QUESTION

“What sort of changes would have to be made for the area to function more as a lounge and social space?”

HYPOTHESIS

“The students hypothesized that the gallery would be used more if the arrangement of furniture were less formal and if small screening elements were used to block the view through the glass wall along the doorway side of the space.”
Figure 9.4 Existing condition of the gallery space, from Janice Barnes et al. Photo courtesy of Barnes et al.

Figure 9.5 Modified condition of the gallery place. Photo courtesy of Barnes et al.
REFERENCES


